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A STUDY TO DETERMINE
THE EFFECTIVENESS OF THE
CATCHMENT AREA MANAGEMENT PROJECT
AT EVANS U.S. ARMY COMMUNITY HOSPITAL
TO CONTAIN HEALTH CARE COSTS

A Graduate Management Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration

by

Captain Jerome Penner III, USA, MS

December 1992

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TABLE OF CONTENTS

	Pages
LIST OF TABLES.....	111
LIST OF FIGURES.....	v
ABSTRACT.....	vi
CHAPTER	
I. INTRODUCTION	
A. History.....	1
B. Conditions Which Prompted Study.....	18
C. Problem Statement.....	20
D. Literature Review.....	20
E. Purpose.....	32
II. METHODS AND PROCEDURES.....	32
III. RESULTS/DISCUSSION.....	36
A. Area Conditions Prior to Implementation.....	36
B. Facility Selection.....	38
C. Implementation.....	40
D. Organizational Changes.....	41
E. Access.....	59
F. Costs.....	65
G. Efficiency.....	77
IV. CONCLUSIONS.....	78
V. REFERENCES.....	83

VI. APPENDICES

A. GLOSSARY.....	90
B. ACRONYMS.....	92

LIST OF TABLES

	Pages
Table 1. CHAMPUS Budget as a Percent of Total DoD Medical Appropriations, FY 1986 - FY 1990.....	13
Table 2. CHAMPUS-Eligible Beneficiary Population, Air Force Academy Hospital & Evans U.S. Army Community Hospital, FY 1988 - FY 1991.....	45
Table 3. CAM Enrollment - Evans U.S. Army Community Hospital, Actual vs Targeted, 2d Quarter FY 1990 - 4th Quarter FY 1991.....	46
Table 4. OB NAS/Live Births, FY 1988 - 1991, Evans U.S. Army Community Hospital.....	52
Table 5. Live Births, Air Force Academy Hospital, FY 1988 - 1991.....	54
Table 6. Total Admissions and Cost per Admission, FY 1988 - 1991, (Hospital Admissions only), Air Force Academy Hospital.....	59
Table 7. Total Admissions and Cost per Admission, FY 1988 - 1991, (Hospital Admissions only), Evans U.S. Army Community Hospital.....	60
Table 8. Total CHAMPUS Admissions and Cost per Admission, FY 1988 - FY 1991, (claims only), Air Force Academy Hospital.....	60
Table 9. Total CHAMPUS Admissions and Cost per Admission, FY 1988 - FY 1991, (claims only), Evans U.S. Army Community Hospital.....	61
Table 10. Total CHAMPUS & Hospital Admissions, FY 1988 - FY 1991, Air Force Academy Hospital.....	62
Table 11. Total CHAMPUS & Hospital Admissions, FY 1988 - FY 1991, Evans U.S. Army Community Hospital.....	63
Table 12. Total Hospital Inpatient Costs, FY 1988 - FY 1991, Air Force Academy Hospital.....	65
Table 13. Total Hospital Inpatient Costs, FY 1988 - FY 1991, Evans U.S. Army Community Hospital.....	65

CAM STUDY

iv

Table 14. Total Outpatient Visits and Cost per Outpatient Visit, FY 1988 - FY 1991, Air Force Academy Hospital.....	66
Table 15. Total Outpatient Visits and Cost per Outpatient Visit, FY 1988 - 1991, Evans U.S. Army Hospital.....	67
Table 16. Air Force Beneficiaries Residing within the EACH Catchment Area, FY 1988 - FY 1991.....	68
Table 17. Outpatient Visits, Evans U.S. Army Community Hospital, FY 1988 - FY 1991, Air Force Beneficiaries only.....	68
Table 18. Admissions (EACH), FY 1988 - FY 1991, Air Force Beneficiaries only.....	69
Table 19. CHAMPUS Inpatient and Outpatient Costs, FY 1988 - 1991, Evans U.S. Army Community Hospital & the Air Force Academy Hospital.....	70
Table 20. Total CHAMPUS Costs, FY 1988 - FY 1991, (claims only), Air Force Academy Hospital.....	71
Table 21. Total CHAMPUS Costs, FY 1988 - FY 1991, (claims only), Evans U.S. Army Community Hospital.....	72
Table 22. Operation and Maintenance Expenditures, FY 1988 - FY 1991, Air Force Academy Hospital.....	73
Table 23. Operation and Maintenance, Army, FY 1988 - FY 1991, Evans U.S. Army Community Hospital.....	73
Table 24. Operation and Maintenance, Army, FY 1988 - FY 1991, Evans U.S. Army Community Hospital (adjusted).....	74
Table 25. Total Cost of Providing Health Care, FY 1988 - 1991, (Direct and CHAMPUS Budgets), Air Force Academy Hospital.....	75
Table 26. Total Cost of Providing Health Care, FY 1988 - FY 1991, (Direct and CHAMPUS Budgets), Evans U.S. Army Community Hospital.....	76

LIST OF FIGURES

	Page
Figure 1. Personal Services Division Organization..	41

Abstract

Total CHAMPUS expenditures from the Department of Defense (DoD) budget have risen at an unprecedented rate over the past eight years. The annual inflationary increase of total CHAMPUS costs ranged from 13 to 16 percent since 1982. In response to rising costs, Congress directed the DoD to begin two major cost containment initiatives, CHAMPUS Reform Initiative (CRI), and Catchment Area Management (CAM) by 1987 and 1988, respectively. Each of the initiatives attempts to curtail rising CHAMPUS costs by establishing civilian contracts with health care providers coupled with aggressive "managed" or "coordinated" care. This study examines the CAM project located at Evans U.S. Army Community Hospital (EACH) at Fort Carson, Colorado. A comparison is made between two DoD facilities, EACH and the Air Force Academy Hospital, also located in Colorado Springs. Specific constructs examined included total CHAMPUS costs, hospital inpatient and outpatient costs and other workload cost data as they relate to the facility as a CAM or control. The facilities were well matched in most respects and have the unique situation of sharing the same community health resources, regional medical center and overlapping catchment area. The study focused on the percent increase of CHAMPUS and

hospital workload data from fiscal years 1988 - 1991, which includes both pre- and post-implementation period of CAM at EACH. Although outpatient visits rose dramatically in each facility, Fort Carson showed an estimated CHAMPUS savings of approximately \$19 million in four years. CHAMPUS inpatient admissions decreased 20.3 percent at the AFAH compared to over 70 percent at EACH. Total CHAMPUS claims costs increased only 11.0 percent since FY 1988 at EACH compared to over 26.0 percent at AFAH. Demonstrated success of the CAM project at Fort Carson lends further support for the acceptance of the Carson CAM as the model for future DoD coordinated care projects.

I. INTRODUCTION

A. History

The delivery of health care in the United States has undergone dramatic changes over the past 50 years. Until about 1930, the U.S. federal government demonstrated a laissez-faire attitude toward health care. Increased public awareness toward health care during the Great Depression focused the federal government's attention on health care. Access to health care became the major issue for the next 30 years (Starr, 1982).

The federal government felt expansion and creation of medical facilities could increase public availability to care. To support this philosophy, Congress passed the Hill-Burton Act in 1946. This legislation provided federal grants and loans for construction of new hospitals and expansion of old facilities. Hospitals accepting grants or loans under Hill-Burton agreed to provide care to indigent patients in return for use of federal funds (Starr, 1982).

By 1950, the United States was spending about 4.4 percent of its Gross National Product (GNP) on health care (Davis et al., 1990). The movement for increased access through expansion continued into the 1960s. The government sought to continue improving access by increasing the supply of providers to meet the public demand.

Scholarships and other financial assistance were provided to would-be physicians, nurses and allied health personnel to expand the medical fields (Starr, 1982).

Following President Johnson's proclamation to transition the United States into a "Great Society," a great deal of congressional support backed social reform. One of the most significant social reforms occurred in 1965 when Congress passed the Medicare and Medicaid bill. Under Title XIII and Title XIX of the Social Security Act, the government assumed care for millions of previously uninsured elderly and indigent (Starr, 1982). By the end of its first full year, the government Medicare budget exceeded \$4.5 billion (Davis, et al., 1990).

Medicare increased access but the government overlooked fundamental flaws which plagued the system. There was no incentive for hospitals or providers to be efficient under the established method of reimbursement. (Aaron, 1991, Callan & Yeager, 1991). The more a hospital could do for a patient, the greater the reimbursement. Providers received payment under a fee-for-service arrangement. Medicare reimbursement was set at "reasonable cost" and a 2 percent-plus factor to provide incentive for hospitals and providers to participate (Davis et al., 1990). To compound the problem, the government contracted

with a fiscal intermediary (FI) to keep the government out of the business of the medical profession. The predominant FI, Blue Cross Plans, had too many ties to the medical profession. Rather than confront hospitals on excessive length of stays or high inpatient costs, the FI accepted the expenditures for fear of repercussion. This placed significant limitations on the government's ability to contain costs (Davis, et al., 1990).

Escalating costs of health care by the mid-1960s soon caught the attention of the government. Between 1965 and 1975, the percentage of Gross National Product (GNP) spent on health care in the U.S. rose from 5.9 to 8.3 percent (Salmon et al., 1990). Health care expenditures grew with increased hospital admissions and services for the elderly plus the general inflation of hospital costs (Davis et al., 1990). As a result of escalating health care costs, both private and government purchasers of health care shifted their focus from access to cost containment.

During the early stages of the cost containment crisis, many believed the United States needed to adopt a publicly-funded, universal health care system like the one used in Canada (Linton, 1990). Unlike the pluralistic system of United States, health care in Canada is a provincial responsibility with 12 (10 provinces and 2

territories) separate systems in place (Deber, et al., 1991). Canada remains the leader of cost efficiency of all industrialized nations, spending about \$50.8 billion for health care in 1988 (Inglehart, 1990) or about 9 percent of its GNP (Jacobs & Serediak, 1992). Acceptance of this form of health care system has historically met with stiff political resistance in the United States. President Truman's proposal for national health insurance met with tough opposition and defeat by the American Medical Association. Proposals for a national health insurance program by Presidents Nixon, Ford and Carter also failed.

The U.S. government became deeply concerned with health care cost containment because Medicare was the single largest buyer of health care in the United States. (Aaron, 1991). This propagated an increase in government cost containment policies and regulatory safeguards for measuring quality care in the early 1970s. Under Phase I of President Nixon's Economic Stabilization Program, a general freeze on wages and prices occurred in the United States in 1971. In 1972, targeted increases, such as health care, were limited under Phase II of the program (Davis, et al., 1990). Congress continued the movement toward cost containment by passing the Social Security Amendments of 1972. This legislation created the

Professional Standards Review Organization program (PSROs) and gave the federal government more cost-containment authority (Eubanks, 1991). The purpose of the PSROs was to monitor the quality of federally funded care and ensure the efficiency of its delivery.

Another critical item contained within the Social Security Amendments of 1972 was Section 223 which gave Medicare officials the ability to disallow reimbursement for inefficient care. This particular section would serve as the forerunner of the Medicare prospective payment system (Davis, et al., 1990).

Nixon's administration showed a great deal of interest in developing lower-cost health care initiatives to compete with the fee-for-service (FFS) plans. Prepaid health care was a major alternative. To gain support of the administration, Paul Elwood, Jr., president of Interstudy, Excelsior, Minnesota, developed the term "Health Maintenance Organization (HMO)" and presented the concept as an alternative to FFS (Strumpf, 1981, Friedman, 1984). The HMO ideology was embraced by the Nixon administration and through congressional support, the HMO Act of 1973 passed as Public Law 93-222 (Davis et al., 1990). HMOs were not new health care entities as they had been in existence since 1910 but only about 33 existed by 1970 and

they commanded a very small market share (Mayer & Mayer, 1989).

HMOs were not initially supported by large organizations such as the American Medical Association (Kenkel, 1992, June 15). This made it difficult for HMOs to gain support from the state health organizations (Starr, 1982). This situation would change with Nixon's support as P.L. 93-222 gave HMOs the opportunity to expand through political support and government grants and loans (Eubanks, 1991, January 20). Between 1973-1983, the government provided \$145 million in grants and \$219 million in loans to develop 115 HMOs under P.L. 93-222 (Davis et al., 1990). By 1975, 133 HMOs existed with 5.8 million enrollees. This increased to over 323 HMOs by 1989 with over 15 million members enrolled (Mayer & Mayer, 1989).

P.L. 93-222 also had a major impact on corporate health care plans. One provision of the law required employers with 25 or more employees to offer an HMO option to their employees if approached by a local federally-qualified HMO (Davis et al., 1990). This provision had a positive impact on the proliferation of HMOs.

As the second largest buyer of health care in the United States, the corporate employer carefully watched federal sector health care initiatives. With an estimated

97 percent of all companies in the United States having health insurance coverage, they had a vested interest in controlling costs (Davis et al., 1990). Corporate employers had been major participants in providing health care since 1942. In that year, the War Labor Board decided employer health insurance was not a violation of wage controls. Union proliferation during the 1940s - 1950s continued to support employee health care as a negotiable item (Starr, 1982).

In 1950, employers spent over \$1 billion on group health coverage. This increased to \$49 billion in 1980 and by 1984, employers paid \$93 billion for employee health care (Davis et al., 1990). In 1980 and 1981, hospital costs raised an average of 18 - 20 percent, placing stress on employee health benefit plans. Corporations began to feel the crunch of escalating health costs. This prompted a dedicated effort by corporate employers to contain costs of health care throughout the decade. Larger, corporate entities realized the need to become a more "sophisticated buyer" of health care services (Inglehart, 1982). Corporate health care administrators were forced to develop strategies that continued to provide effective care and control health care costs.

Corporations experimented with many different

alternatives to control costs. The most common methods included increased cost shares and deductibles for the employee, utilization and claims review, Health Maintenance Organization enrollment options and wellness programs. The prominent ideology developed by the private sector was "managed care." Under the concept of managed care, the health care manager tries to control the use and quality of health services provided. The manager accomplishes this through financial incentives, penalties or administrative procedures to change practice patterns of providers and hospitals. Managed care attempts to influence when and where care is provided, how much is provided and the length of treatment given (Boland, 1991). The goal was to insure cost efficient, quality healthcare.

An administrative area developed to assist the health care manager with managing care was utilization review (UR). Specific areas addressed by utilization review programs include prospective review, preadmission certification for elective procedures, concurrent review which includes discharge planning and length of stay authorization and retrospective review of claims susceptible to abuse (Jones, 1990). HMOs, like Kaiser-Permanente, soon discovered they could readily design programs to support the managed care concept.

HMOs are unique health organizations because they provide both health insurance and care to individuals enrolled in their programs. Enrolled beneficiaries pay a premium to the HMO while the HMO contracts for a group or "network" of care providers. Patients are assigned a primary care physician (PCP), sometimes referred to as a "gatekeeper," who oversees the care received by the patient. To provide incentive to the PCP for cost effective care, the HMO usually ties a monetary bonus to the provider's efficiency.

Many physicians and physician groups recognized this window of opportunity and formed Preferred Provider Organizations (PPOs) to support the HMOs. A PPO is a health financing and delivery arrangement where a group of providers contract their services on a predetermined basis to health care purchasers such as HMOs. The HMO offers the PPO as a source of services to enrolled beneficiaries (Manzano & Tibbitts, 1984). HMOs establish contracts with the PPOs to provide comprehensive health services on a capitated or discounted FFS basis (Ile, 1989).

HMOs have also been successful in monitoring the quality of care through careful utilization review (Anderson, 1992, March 20). Most contracts with PPOs or other health care entities provide a utilization review

program. Utilization review has continued to provide fuel for the cost containment movement. With utilization review programs, private sector health care managers found it was cheaper to treat patients on an outpatient basis rather than on an inpatient basis. As a consequence, a dramatic swing in the mechanism of health care delivery occurred across the United States. The focus of health care changed from a "bed driven" perspective to ambulatory care settings (Berkowitz, 1985). Inpatient stays decreased along with hospital occupancy rates in the United States over the past two decades. The private sector hospital occupancy rate dropped from 80.3 percent in 1970 to 69.6 percent in 1989 (Eubanks, 1991, January 20).

Outpatient procedures dramatically increased during the same period as inpatient procedures shifted to outpatient settings. Outpatient visits in the civilian health care sector totaled 181 million in 1970 compared to 352.2 million in 1989 (Eubanks, 1991, January 20). The government assisted the shift from inpatient to outpatient treatment by implementing a prospective payment system (PPS) developed at Yale University in 1983 (Davis et al., 1990).

The PPS system, Diagnosis-Related Groups (DRGs), was used by the government to reimburse hospitals for Medicare

and Medicaid expenditures. Under the DRG system, the hospital was reimbursed for a fixed amount based upon the procedure performed. The hospital was forced to assume financial risk for patient treatment (Salmon, et al., 1990). This provided direct incentive for the hospital to contain costs through aggressive discharge planning, UR and other monitoring procedures. DRG implementation has proven effective. Following DRG implementation, Medicare inpatient days decreased from 116 million in 1983 to 105 million in 1984. By 1986, the number of Medicare inpatient days had decreased to 91 million (Davis et al., 1990).

Success of managed care in containing costs for employers has been positive. In 1992, an A. Foster Higgins & Company, Inc. survey reported that managed care generally cost employers less than traditional indemnity insurance plans (AHA News, 1992, April 13). The survey of over 2,400 employers reported that the average cost per employee enrolled in PPOs was \$3,355 compared to \$3,046 for those enrolled in HMOs. Compared to traditional indemnity insurance plans, PPO and HMO plans were 6.1 and 14.7 percent less, respectively.

Lagging behind the private sector, a similar reform of the Department of Defense (DoD) health care system was suggested to combat rising health care costs. The DoD

operates a two tiered health care system. The DoD's direct care system, the Military Health Services System (MHSS), operates over 500 medical treatment facilities (MTFs) worldwide and 129 hospitals in the United States. This establishes the MHSS as one of the largest health care systems in the world (Baine, September 1990). This system provides services to 2.3 million active-duty soldiers and 6.5 million other beneficiaries. Care received by beneficiaries within the MTF is essentially free except for a small per-diem fee charged for inpatient stays.

Rising health care costs turned the attention of the DoD to the second tier of its health care system--its military beneficiary insurance program. The Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) was a DoD program created under the Dependents' Medical Care Act in 1956 (Potter, 1990). CHAMPUS was designed to provide comprehensive health benefits to family members of active duty and retired military personnel, and retirees and survivors up to the age of 65. Without CHAMPUS, many non-active duty beneficiaries would only be able to receive medical care within an MTF or obtain care under some other system. With an estimated 6.5 million beneficiary population, the CHAMPUS program is one of the largest of its kind in the nation.

Over the past five years, CHAMPUS has come under close scrutiny by Congress due to the rising costs of providing comprehensive health services. CHAMPUS grew at a rate of between 13 - 16 percent annually over the past eight years (OCHAMPUS, 1990). From 1985 - 1989, CHAMPUS costs nearly doubled from \$1.4 billion to \$2.5 billion. (Baine, 1990, September). Since 1986, the CHAMPUS portion of the DoD budget has grown conspicuously larger.

Table 1.

CHAMPUS Budget as a Percent of
Total DoD Medical Appropriations
FY 1986 - FY 1990
(\$ in Thousands)

Fiscal Year	CHAMPUS (DoD Only)	Total DoD Budget	CHAMPUS as % of DoD Budget
1986	\$1,735,128	\$10,386,416	16.7
1987	\$1,964,136	\$11,495,891	17.1
1988	\$2,670,127	\$11,998,861	22.3
1989	\$2,674,604	\$13,148,815	20.3
1990	\$3,119,223	\$14,089,502	22.1

Source: reproduced from OCHAMPUS Chartbook of Statistics October 1991 (figures obtained Office of Secretary of Defense, Health Affairs and are considered unadjusted final figures).

It was not until 1985 that managed care was suggested as an alternative for the military health care delivery system (Slackman, 1991, September). In response to the pressure of rising CHAMPUS costs, the DoD created major and minor initiatives to contain CHAMPUS costs. These initiatives were based on the managed care ideology of the

civilian sector and expansion of current MTF capability.

The DoD recognized that MTF occupancy rates had steadily declined since 1983. Since 1986, CHAMPUS inpatient workload (admissions) accounted for over 25 percent of the total DoD inpatient admissions (CHAMPUS Chartbook of Statistics, 1991, October). Although statistics showed that approximately 70 percent of the CHAMPUS workload lived within MTF catchment area, active duty personnel ceilings kept the DoD from increasing staff at its facilities to recapture CHAMPUS workload (GAO Report, 1989, July 10).

The DoD took several actions to shift the CHAMPUS responsibility to its component services. In 1988, the DoD shifted financial responsibility for CHAMPUS to the services (Army, Navy and Air Force) (Hilsenrath, 1990). Other programs were created to demonstrate the feasibility of recapturing CHAMPUS workload through staffing augmentation. One of the most prominent was PROJECT RESTORE. Two minor initiatives were developed under PROJECT RESTORE to assist the DoD to make better use their MTFs. The first initiative, the Military-Civilian Health Services Partnership Program (hereafter called the Partnership Program), began in 1988 (GAO Report, 1989, July 10). Under the Partnership Program, the MTF forms an

agreement with a provider to come into the facility to treat patients. The partner physician agrees to accept a reduced CHAMPUS reimbursement, usually not more than 70% of the CHAMPUS allowable. Since the physician partner bills CHAMPUS, no cost is realized by the beneficiary. Overhead cost is reduced under this arrangement since ancillary staff and support are provided by the facility. This ultimately represents a cost avoidance to the facility. Over 1,300 partnerships had been established by DoD facilities through May 1990 (GAO Report, 1989, July 10).

A second initiative under PROJECT RESTORE was Alternative Use of CHAMPUS Funds. This initiative provided \$50 million in CHAMPUS funds for approved projects. These funds were dedicated for treatment of only CHAMPUS patients. To receive Alternate Use funds, the MTF must send a proposal to the DoD. The proposal explains how requested funds will be used to recapture CHAMPUS workload (i.e. purchase staff to provide psychiatric care services). The plan must include an expected cost avoidance. The proposal is evaluated by the DoD and is approved or disapproved. As of March 31, 1989, 40 projects were approved with estimated savings to the DoD expected to be \$43 million (based on \$25 million invested) for fiscal year 1990 (GAO Report, 1989, July 10).

Following the minor initiatives, Congress directed the DoD to implement a couple of aggressive major cost containment initiatives based upon successful private sector managed care principles. The first of the major initiatives directed by Congress was CHAMPUS Reform Initiative (CRI). Authorized under Public Law 99-661 (National Defense Authorization Act), the initiative began in 1987, the same year the escalating CHAMPUS budget topped \$1.8 billion (Baine, 1987).

The supporting premise behind CRI was to contain costs of health care through fixed-price contracts initiated with a private sector health care contractor. To govern the CRI project, the DoD established five guidelines: 1) establish fixed-price contracts where the provider assumes the risk; 2) voluntary enrollment of beneficiaries to insure increased access; 3) provide health care finders to increase coordination; 4) providers must adhere to quality assurance standards; and 5) simplify administrative procedures (Baine, 1987).

The CRI demonstration project, underway in the Hawaii and California, serves a beneficiary population of 254,000 (Fant & Pool, 1990). Results are promising, however CHAMPUS costs continue to rise in these areas. A second CRI contract was recently approved for the New Orleans area

through Foundation Federal Healthcare, Inc. for \$134 million for the next five years (AHA News, 1991, September 16).

A second government initiative titled Catchment Area Management (CAM), began in 1989. Two Army test sites were selected to participate: Fort Carson, Colorado and Fort Sill, Oklahoma. Under CAM, the hospital commander prospectively receives all of the CHAMPUS monies budgeted for his catchment area. Normally, the hospital commander only receives his Operation and Maintenance (OM) funds to run his facility. Although the commander can monitor his CHAMPUS funds, he has little control over their use. With CAM, the commander can spend his CHAMPUS funds in addition to his OM funds with the ultimate goal of providing the most cost effective health care for the dollar. This gives the local commander control of both his direct care and CHAMPUS budgeted monies (Badgett, 1990).

Both CAM and CRI initiatives are similar, in their approach since financial risk is involved with the delivery of health care. With CAM, the hospital commander assumes the risk by the way he spends his monies. The commander makes the decisions to buy health care services and personnel he feels necessary to benefit his catchment area and reduce costs. Poorly established contracts with weak

control mechanisms can end up costing money rather than providing cost avoidance to the commander. CRI places the civilian contractor at risk for the success or failure of the cost containment. The DoD holds the contractor responsible for establishing cost effective contracts with providers and services. Since the contractor prospectively receives fixed-funds under the DoD contract, there is incentive to provide cost effective care. If the contractor fails to stay below established contract costs, he must accept the loss. By staying below contract costs, the contractor profits by retaining unspent funds. This provides incentive for the contractor to channel as many patients as possible to his supporting MTF (Slackman, 1991, September). It was this risk factor which kept many large healthcare organizations from bidding on the lucrative CRI contract (Baldwin, 1987). The initial CRI and CAM projects have shown promising results and will remain test programs until fiscal year 1993 (Slackman, 1991, September, Dixon et al., 1989).

B. Conditions Which Prompted Study

There has been much conflict between Congress and the DoD over the past three years concerning the future of military medical care (Weissenten, 1992, March 23, Kenkel, 1992, March 9). Although congressional support of CRI is

great, Dr. Enrique Mendez, Assistant Secretary of Defense, Health Affairs, feels CAM or a similar alternative is necessarily the future of military health care (Nelson, 1991, April 29). Recent approval of the DoD Coordinated Care Program at the DoD seems to indicate the same.

Evaluation of implemented DoD coordinated care programs such as CAM and CRI is imperative for gaining knowledge during the proliferation phase of governmental coordinated care. In 1987, the DoD contracted with the Rand Corporation to evaluate the level of success of CRI. This report will be released sometime in FY 1992. The DoD established a similar contract in 1990 with the Rand Corporation to determine the level of success of the five CAM demonstration projects. This study is not projected for completion until 1993.

The most recent military coordinated care program study was conducted by Joel Slackman of the Congressional Budget Office. The study was very inconclusive and in the final chapter of the report, Mr. Slackman emphatically states that it was too early to determine the success of the CAM projects (Slackman, 1991, September). In light of this conclusion by the Congressional Budget Office, or lack thereof, this study serves as an interim evaluation of the CAM demonstration project at Fort Carson.

C. Problem Statement

To determine if the Catchment Area Management Project at Fort Carson, Colorado has been effective in meeting the goal of health care cost containment when compared to another military facility under similar circumstances.

D. Literature Review

The intent of the literature search was to uncover previous works which support the success of private or government managed care initiatives. Emphasis was placed on managed care principles which could be or have been successfully applied within military medical treatment facilities to contain costs.

Private sector health care costs rose a staggering 10.5 percent from 1989 to 1990 (AHA News, 1991, October 7). \$666.2 billion or 12.2 percent of the GNP was spent on health care in the United States in 1990 (AHA News, 1991, October 7). CHAMPUS costs during the same year increased over 13 percent. The government spent 15.3 percent of federal funds on health care in 1990 up from 14.7 percent from the previous year (AHA News, 1991, October 7). With focus on these numbers, the bottom line for the future of Catchment Area Management or any government managed care program is cost containment.

Private Sector

The private health care sector is a staunch supporter of the success of the principles of managed care. Proliferation of HMOs and other managed care entities clearly demonstrate an abundance of successes over failed ventures. A recent survey of over 500 U.S. hospital CEOs, showed that 20.2 percent of all hospitals report between 11 - 30 percent of their total net hospital revenue in 1990 came from managed care. Almost 30 percent of those polled expected to reach that level in 1991 (Hospitals, 1990, July 20). Hospitals' fifth annual diversification survey reported 92 percent of the PPOs and 83 percent of the HMOs surveyed broke even or made a profit in 1991 (Hospitals, 1992, January 5).

As managed care organizations proliferated, competition with emphasis on efficiency has allowed only the financially strong to survive. Those financially successful managed care organizations which survived the cost containment challenge of the past two decades share many common aspects. Restricted or controlled access is an overarching principle of most plans. This is usually accomplished through financial incentives or disincentives to the recipient of care, the provider, or both. Some health insurance companies use second opinions as a method of restricting access. Corporations usually make this

voluntary and financial incentives to the beneficiary are customary. One corporation's (Owens-Illinois) standard practice is to reimburse for 100 percent for surgical procedures if a second opinion is obtained. The reimbursement is only 80 percent if a second opinion is not sought by the beneficiary (Fox et al., 1984). Prudential is another corporation which stresses the use of second opinions. Approximately 15 percent of Prudential's large group plans offer second opinion plans with 80 percent of those offering financial incentives (Davis et al., 1990).

Other corporate giants control access through more restrictive approaches. In 1987, Humana, Inc., (Louisville, Kentucky) purchased International Medical Centers (IMC) of Miami, Florida after IMC reflected a loss of \$18 million in 1986. Humana's corporate philosophy is to control costs by keeping them within their organization, that is, to channel their beneficiaries to providers within their organization. Humana can more easily control the practice patterns of their own physicians which holds down costs and referrals. With a focus on access, Humana implemented several changes to the IMC plan. To control access, Humana created financial disincentives for beneficiaries who use hospitals outside the system. The result was a pretax profit of over \$6 million on revenues

of \$225 million during the first six months of 1988 (Larkin, 1988).

Another commonly used method for controlling access to health care by HMOs is beneficiary assignment to a primary care provider (PCP) or "gatekeeper." Beneficiaries are assigned a PCP when they enroll in a health care plan. The PCP serves as a gatekeeper who oversees all care received. The gatekeeper oversees use of services and minimizes inappropriate referrals. By using a single control point, HMOs keep self-referrals in check and can easily monitor appropriateness of care (Hurley, et al., 1989).

Many health care entities are using mandatory enrollment with PCP assignment to control their health care costs. Not exclusive to the private sector, many states use this approach to monitor their Medicaid patients (Hudson, 1991, June 5). This approach has been met with strong approval by the Health Care Financing Administration (HCFA) since Medicaid cost containment reform is one of its major concerns (Burke, 1991). HCFA chief, Gail Wilensky, regards managed or coordinated care as "a strategy that will provide services for Medicaid population that will respond to their needs better" (Burke, 1991). Twenty-four states currently have "freedom of choice" waivers for mandatory enrollment and/or limited provider choices under

Medicaid (Johnsson, 1992, March 20).

Kentucky is considered the model for Medicaid cost containment reform. Kentucky operates one of the largest managed care Medicaid programs and has used the freedom of choice waiver to a cost saving advantage (Burke, 1991). The Kentucky Patient Access and Care Program (KenPac) began using mandatory enrollment for its Medicaid families in 1986. The resultant cost avoidance was \$125 million over the past five years. Much of the savings was attributed to greater control over inappropriate use of services by the gatekeepers. KenPac also increased overall utilization review activities from 1986 to 1989, saving \$12.1 million alone by reducing emergency visits. The majority of the KenPac savings was from reduced specialty services (Burke, 1991). Since utilization review can focus on patient use, billing procedures and provider practices, many aspects of care can be closely monitored. This is especially true in closed systems with established networks and closely monitored patient populations such as KenPac.

KenPac is not the only managed care program to successfully use some sort of utilization review in its managed care plan. Although many organizations have not learned to use UR effectively (Johnsson, 1992, March 20), utilization review (UR) is a cornerstone of most all

managed care programs. UR is often accomplished through preadmission procedures, concurrent and prospective review. It is difficult to dispute the effect UR has made on private managed care. Group Health Association of America, Washington D.C. reported that HMO utilization rates were almost half of the national average per 1,000 enrollees (389 to 732 inpatient days) in 1989. For those over the age of 65, HMO rates were 1,543 per 1,000 enrollees compared to the national average of 2,930 days per 1,000 (Hospitals, 1992, January 5).

Aggressive case management with UR is another effective combination used by successful managed care organizations. A recent Hospitals' article reported on a Houston, Texas hospital which transitioned to managed care principles following a \$6.6 million loss in 1989. The 562-bed Hermann Hospital reflected a \$6.4 million profit in 1990. Implementing strong case management and UR principles within its organization, Hermann reorganized "its preadmission, concurrent review, and discharge planning under a single Office of Managed Care" (Johnsson, 1991, March 5). The result decreased patient length of stay by 9.5 percent and patient census by 5 percent. Specific areas attributed for the success include a targeted-health care program for 73 high-cost DRGs,

extensive UR and physician education. This internal managed care improvement and education process strengthened Hermann's ability to negotiate fee schedules and contracts with PPOs as they became more intelligent purchasers of health care (Johnsson, 1991, March 5).

Managed care principles have been just as effective in the corporate environment. Since large employers are required to offer health plans to employees, many corporations contract with managed care organizations in an effort to control their employee health care costs. Current estimates of greater than 70 percent of all U.S. employees who have health insurance are enrolled in HMOs, PPOs or some other plan with utilization review features (U.S. Industry Outlook 1990, 1990).

Some corporate employers manage their own health care costs. Southern California Edison (SCE) is one example. The second largest utility organization in the United States, SCE is responsible for the health of over 55,000 employees, beneficiaries, retirees and family members. These beneficiaries are enrolled in SCE's company-financed health care plans. SCE's program includes PCPs, in-house claims payment, utilization management, a dedicated PPO and strong emphasis on preventive care (Schmitz, et al., 1991). These activities are organized under a Health Care

Department staffed with 200 personnel. A contracted network of over 7,500 providers augment the SCE PPO. After a 20% increase of health care costs in 1987 and 1988, expenditures were reduced in 1989. Expenditures of \$80 million were 25 percent below projected costs which translates to a cost avoidance of \$20 million (Schmitz, et al., 1991).

Like SCE, many managed care organizations are successfully cutting out the middleman (HMOs) and are creating networks of their own as a cost saving measure (Johnsson, 1992, March 20). A network is a group of providers who join together to provide similar services to a geographic area (Berkowitz, 1984). Hospitals and insurance carriers can be very selective in choosing physicians to join their network. Deregulation allows hospitals to selectively contract with only those providers with efficient practices. Strong UR procedures within an organization allows for providers to be "released" from a network if he fails to meet efficiency guidelines established by the organization.

Competition between networks and providers provides managed care organizations another subtle opportunity for cost containment. Until the inception of managed care, the dominant method of payment for physicians was an

open-ended, FFS arrangement. The drawback of this system is that providers are paid for doing more. This creates little incentive for efficiency (Enthoven & Kronick, 1991). HMOs have been successful at transitioning providers away from traditional FFS arrangements. More innovative salary arrangements such as capitation or discounted fee-for-service in exchange for volume are common. Negotiations for shared-risk arrangements or discounted fee schedules are paramount to controlling costs. These arrangements provide incentives for both parties to control costs. As a consequence, HMOs can be selective by choosing the providers with the most cost efficient record of care.

Department of Defense

Like other managed care approaches (Burke, 1991), the DoD recognizes the opportunity to contain costs of treating patients within their system. One study, conducted by the General Accounting Office (GAO) on workload reductions in military facilities, was released in July 1989. The study reported that CHAMPUS costs increased faster than any other portion of the DoD health care budget. The CHAMPUS budget represented almost 20 percent of the \$12.7 billion spent on health care by the DoD in 1989 (GAO Report, 1989, July 10). The report stated that almost 70 percent of CHAMPUS costs were incurred within the catchment areas of military MTFs.

Using workload and variable cost information from the Medical Expense and Performance Reporting System (MEPRS), the GAO researchers made several recommendations. They recommended recapturing workload within the MTFs would reduce CHAMPUS expenditures within catchment areas (GAO Report, 1989, July 10). To increase workload, the MTF must add staff to their facilities to increase access to their beneficiaries. The GAO felt targeting emphasis should be placed on the active duty dependents since they were less likely to have another insurance carrier (GAO Report, 1989, July 10). Recognized barriers to increased staffing included active duty ceilings, non-competitive government civilian salaries and slow contracting processes.

In a follow-up report (1990), the Congressional Subcommittee on Military Personnel and Compensation reported that success of current DoD initiatives would be dependent upon specialty and location. The subcommittee looked at six military hospitals (including Fort Carson) in the United States. The subcommittee determined that improved access by increased staffing could save from \$18 - \$21 million yearly. With increased staffing, CHAMPUS expenditures at the facilities would be decreased from between 43 percent to 52 percent (Baine, September 1990). Much research has been prepared by the services and the

government to justify increases in the facility workload by adding physicians.

Outpatient and inpatient costs have been the target of many local studies. A recent study conducted in the Fort Hood area determined the cost of an outpatient visit to an Army pediatrician to be \$33.48. The same visit to a CHAMPUS partner pediatrician was \$48.39. CHAMPUS reimbursement to a private sector emergency room or clinic was \$71.00 (Callahan & Pierce, 1991).

A similar conclusion was made by Cook in an inpatient cost analysis conducted at Fitzsimons Army Medical Center (FAMC) (Cook, 1987). Cook based the study upon a cost analysis of selected CHAMPUS workload outside the MTF. Using a single category which could be controlled by the medical center, Cook compared cost per bed day to the same factor from CHAMPUS workload data. Cook determined there was a potential significant savings between FAMC inpatient bed day costs versus CHAMPUS inpatient bed day costs. By controlling inpatient bed day costs, FAMC could make a significant impact upon its yearly CHAMPUS expenditures (Cook, 1987).

In an effort to create efficiency and recapture CHAMPUS workload, the DoD responded by implementing major initiatives such as CAM and CRI. Little information on the

success of the initiatives has been produced with the exception of a recent study prepared by Joel Slackman of the Congressional Budget Office. Slackman examined the five CAM demonstration projects underway in the Army, Navy and Air Force. Slackman presents an overview of enrollment techniques, network establishment, UR, and cost savings at the five projects (Slackman, 1991, September).

In Chapter VI of the report, Slackman compares total costs, admissions and outpatient visits of the two Army CAM projects (Fort Sill and Fort Carson). His comparison shows an increase of non-active duty outpatient visits by 23 percent at Fort Carson in 1990 compared to only 6 percent at Fort Sill. Admissions of dependents of active duty and retirees and their dependents at Fort Carson rose 25 and 40 percent, respectively in 1990. Fort Sill reflected a decrease in admissions of both categories of patients. Slackman finally compares the total expenditures at each facility. Based on total costs, the Fort Sill budget increased 22 percent from 1989 to 1990. Fort Carson increased only 5 percent, "well below the 9 percent general rate of increase in health care spending" (Slackman, 1991, September).

In the final chapter of the report, Slackman makes a statement which provides impetus for future research on the

effectiveness of the CAM projects. "Civilian experience shows that managed care plans typically require two to three years to show success. It is thus too soon to judge whether the CAM demonstrations have led to lower health care costs" (Slackman, 1991, September).

E. Purpose

The purpose of this cost comparison study was to determine if the Fort Carson CAM project was successful in containing health care costs when compared to the Air Force Academy Hospital (AFAH). With the exception of Mr. Slackman's report, little empirical data are available to either support or deny the effectiveness of the CAM initiative at Fort Carson (Slackman, 1991, September). Although the Rand Corporation is conducting a study of the CAM projects, the target completion date is not until 1993. This study should prove extremely beneficial since it provides data necessary to make a preliminary assessment of the CAM project at Evans U.S. Army Community Hospital.

II. METHOD AND PROCEDURES

To separate the effects of the CAM demonstration project from any other changes, the study compares the experiences of EACH to a control DoD facility, the AFAH. To validate the appropriateness of the comparison, the following assumptions were made:

1) Portions of the AFAH catchment area participated in the CAM (overlapping zip codes) project however it was assumed that market conditions at the AFAH and EACH were stable throughout the comparison (i.e. affected by normal inflationary rates, population growth, local provider costs, etc.).

2) The Air Force Academy Hospital was being used efficiently throughout the period of study and did not undergo any changes in organization.

3) Quality of care at both facilities was equal throughout the period of study.

4) Demand for CHAMPUS-delivered care was not altered in the Air Force Academy Hospital catchment area.

5) No changes in mission occurred at either the Air Force Academy Hospital or Evans U.S. Army Community Hospital.

When the Rand Corporation examined the preliminary success of the CHAMPUS Reform Initiative, they were confronted with the problem of unbalanced comparisons (Dixon, et al., 1991). It was difficult for the researchers to compare facilities due to population growth, community variations, etc. Rand selected 10 non-CRI facilities to serve as the control against which the CRI facilities were matched. By averaging the 10 facilities,

the Rand researchers reasoned that variables such as seasonal variation, community provider costs and demographics were sufficiently buffered (Dixon, et al., 1991). Since the AFAH was used as the control facility, this comparison study cancelled many of the problems which confronted the Rand researchers. Demographics, population growth, local provider costs and other variable factors between EACH and the AFAH should have been virtually identical and would not enter into the study as confounding effects.

Data extracted for the two facilities include Operation and Maintenance (OM) budget, CHAMPUS inpatient costs, CHAMPUS outpatient costs and total CHAMPUS expenditures. Workload and expense data for both hospital inpatient and outpatient settings were also extracted. The data was separated into two categories: CAM site or control site data. Once these data were collected, a trend analysis of the before and after CAM implementation period was conducted. Comparisons against DoD MTF averages were used when appropriate. Projections for straight line averages were made using actual inflationary and/or program growth rates for CHAMPUS. These rates were obtained from the Office of the Civilian Health and Medical Program of the Uniformed Services (OCHAMPUS), Statistics Branch. All

comparisons involving net increases or decreases for future years use FY 1988 as the base year for comparison.

The preliminary data collection process centered around data extracted from the Medical Expense and Performance Reporting System (MEPRS) data. These data provide a secondary data source of information. Data were extracted for the fiscal years 1988 - 1991. This represents a period before and after the implementation of the CAM demonstration project at Fort Carson. Fiscal year 1988 is used as the base year for the study since CHAMPUS expenditures reached a peak at Fort Carson in that year. One essential assumption made from the outset of the data collection process was that the data drawn from the MEPRS system were accurate and complete for each of the years of the study. The Defense Medical Information System (DMIS) was used to verify the accuracy of the MEPRS data.

The reliability and validity of the study were dependent upon the accuracy of the information gathered from MEPRS and DMIS. In this case, since our sample was the population, the results truly represented the parameters of the population in question. This was supported by the fact that a measure is reliable only to the degree that it supplies consistent results (Emory, 1985). The reliability of the study was concerned with the

degree in which the measurements taken were free from error. Since the experimenter can be a common source of error, it was assumed that an error in measurement in the DMIS or MEPRS data bases has been buffered. This is true because the information is sifted through many sources before entered into either system. As with all data sources, the results are only as reliable as the data available allow (Emory, 1985).

III. RESULTS/DISCUSSION.

A. Area Conditions Prior to Implementation

Colorado Springs was the second largest city in Colorado with approximately 400,000 residents in 1988. Demographically, Colorado Springs was 84 percent white with blacks, Hispanics and native Americans accounting for 7.2, 8.7 and 0.8 percent of the population, respectively (Colorado Springs Chamber of Commerce, 1992).

The private sector health care market within the Colorado Springs area was fairly well-developed with 5 private sector acute care hospitals supporting the population with 1131 beds. Of those hospitals, 4 were not-for-profit facilities. Approximately 560 physicians and surgeons were employed in the Colorado Springs area.

Three military acute care facilities also operated in the Colorado Springs area. Located in the far northern tip

of the city was the Air Force Academy Hospital (AFAH). Supporting the cadet population of the Air Force Academy, the AFAH provided a 60 bed inpatient capability. Services provided by the AFAH included emergent care, obstetrics, gynecology, general and orthopedic surgery, general medicine, family practice and pediatrics. The AFAH supported about 51,000 beneficiaries including 4,500 cadets, 12,819 active duty airmen, 14,829 dependents of active duty, 18,834 retirees and their dependents (Defense Medical Information System).

A second Air Force facility was situated in the eastern portion of Colorado Springs at Peterson Air Force Base. This facility was a fairly large clinic with the capability of providing outpatient care for family practice, obstetrics, gynecology, pediatrics and limited emergent care. No inpatient capability was available at the clinic.

The third military facility providing care to Colorado Springs was located at Fort Carson, approximately 20 miles south of the AFAH. Home to approximately 20,000 active duty soldiers, Fort Carson medical care was provided by Evans U.S. Army Community Hospital (EACH). One of the newest facilities in the Army system, EACH was designed as a 195 bed acute care facility with expansion capability to

212 beds. Opened in 1985, the facility is state-of-the-art in design and technology. Along with Carson's active duty population, EACH was responsible for a total beneficiary population of 75,248. This included 31,082 active duty dependents and 23,968 retirees and their dependents (Defense Medical Information System). Much like the AFAH, EACH was capable of providing comprehensive health services which included general and orthopedic surgery, obstetrics, gynecology, general medicine, family practice, pediatrics and emergency medicine.

B. Facility Selection

As explained in the historical review, health care costs in both the private and federal sector were a prime national concern throughout the 1980s. In the military sector, Congress sought alternatives based on private sector managed care principles to curb the growth of health care costs. One of the suggested alternatives was Catchment Area Management (CAM). Since military managed care was a new concept, the DoD elected to test the CAM concept at some of its military facilities. Rather than examine facilities with similar characteristics, the DoD used a rigorous selection process to evaluate possible military test sites under different market situations. In all, 5 military sites were selected. The list included 2

Army and Air Force locations and 1 Navy site (Badgett, 1990, July).

The selected locations each had distinct market characteristics which were to be evaluated upon CAM implementation. Fort Sill (Army) was selected because of its location. Sill was considered a isolated rural post with a limited health care market. Lawton, the closest city to Fort Sill, supported a population of 83,700 with about 400 beds. These beds were distributed across 4 acute care facilities and 1 mental health facility. This would theoretically lessen the opportunity for Fort Sill to capitalize on competition from the local market when compared to other CAM sites with more extensive markets.

Quite a different situation existed at Fort Carson. Located adjacent to a city with 400,000 residents, 5 acute care hospitals, a relative abundance of physicians, and a total of over 1,100 beds, the potential competition between local community providers could be great. A second aspect which made the selection of Fort Carson unique was that it shared an overlapping catchment area with the Air Force Academy Hospital located 20 miles north. Since overlapping catchment areas are not an uncommon across the U.S., this provided the DoD with an excellent opportunity to determine the effects of CAM on an overlapping catchment

area. Another important consideration which favored the selection of EACH was its yearly CHAMPUS expenditures. This facility historically ranked second among Army MTFs in yearly total CHAMPUS expenditures.

C. Implementation

Once the selection process was completed, each demonstration site was required to submit a business plan which incorporated the four guidelines established by Congress. The test sites were charged with 1) maintaining quality of care; 2) improving access to the MTF by incorporating the health care finder concept; 3) maintaining a high level of beneficiary satisfaction; and 4) controlling health care costs. Once the business plan was approved, the demonstration project was free to begin implementation of the project. The EACH CAM business plan received approval by late FY 1988 with tentative implementation scheduled for late FY 1989.

One of the most significant changes EACH had to consider was the additional control authority over CHAMPUS dollars. The AFAH and EACH had traditionally operated on a workload-based fixed budget allocated by to them their higher headquarters. The local commander received his direct care budget prospectively and was required to operate his facility within the confines of the budget.

CHAMPUS monies, which represented a substantial budget for the commander, could be monitored but there was little control over the budget. This budget was so substantial, in fact, that it represented nearly \$8 million to the AFAH commander in FY 1988. Outside of not authorizing certain inpatient procedures to catchment area beneficiaries, the local area commander had little control over the day-to-day expenditure of his CHAMPUS budget. The AFAH would continue to operate this way throughout the CAM demonstration period at EACH.

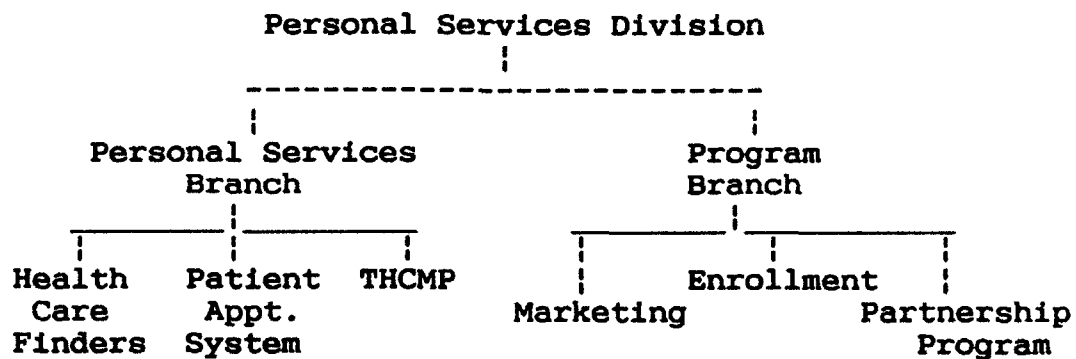
Quite a different situation existed at EACH. Under the CAM demonstration authority, the hospital commander was prospectively given local control of his forecasted CHAMPUS budget. This represented over \$24 million in FY 1988 which essentially doubled the total budget available to the commander. The commander was free to buy any staff or services he felt necessary to give his beneficiaries the best care for the dollar. Like managed care organizations in the private sector, the commander had to assume some degree of financial risk with every health care purchasing decision which was made.

D. Organizational Changes

The command at Evans determined that organizational changes were necessary to accommodate the expanded services

and requirements under the CAM demonstration project. Control of the project was the primary concern. Figure 1 represents the original organization created to control the operation of the project.

Figure 1.



Two branches were organized under the Personal Services Division, the Program and Personnel Services Branches. Within the Program Branch were the Partnership Program, Enrollment Office and Marketing Office. The Personnel Services Branch included the Patient Appointment System, Health Care Finders (also called Health Benefit Advisors) and the Targeted Health Care Management Program (THCMP). Approximately 40 personnel initially staffed the entire department (PSD).

CAM officials recognized that an internal assessment of the hospital and external of the local market was necessary if they were to be successful in implementing the CAM within the Colorado Springs area. Internally, EACH had

195 beds but maintained only a 49.4 percent bed occupancy in FY 1987 because the facility was only staffed for 108 beds. Since the facility was only two years old, expansion of the existing structure was not a consideration. EACH had the capability of operating nine surgical suites, only four of which were in use per day. Out of nineteen available recovery beds, seven were unused. Of the five delivery and birthing rooms, only three were used due to lack of staff. Many deliveries were sent to downtown Colorado Springs providers on a monthly basis. Obstetrical services alone amounted to \$7.7 million dollars or over 30 percent of EACH's total CHAMPUS budget in FY 1988 (Health Care Summary Report, FY 1988). The bottom line of the internal assessment was that the facility was underused but staffing ceilings prevented further expansion of services.

Externally, the Colorado Springs area offered a well-developed, competitive healthcare marketplace. With a multitude of providers, established networks and fairly large hospitals providing comprehensive services, EACH was in a unique situation. Representing over \$24 million in CHAMPUS revenue to the community, EACH was a major purchaser of health care. Competition for CHAMPUS dollars in healthcare areas like psychiatry would be great, especially since psychiatry represented a large portion of

EACH's CHAMPUS budget (30 percent, FY 1988). Officials at EACH were determined to use local competition for lucrative CHAMPUS dollars to a cost savings advantage.

Many peculiarities about the EACH catchment area were discovered during the external assessment. For instance, services like obstetrics and mental health represented areas which generated many visits at a relatively low cost per visit or procedure. In the aggregate however, sheer numbers of visits or procedures accounted for their high costs. CAM officials felt that controlling this workload was necessary for success. Another group of patients existed within the catchment area which represented a disproportionately high cost to the facility per service provided. The command realized that the facility and these patients might benefit from some sort of system of aggressive case management.

Another key piece of information uncovered during the external environmental assessment concerned the activity of the beneficiary population. It was understood that over 50,000 CHAMPUS-eligible beneficiaries existed in the catchment area but only about 12,000 were high dollar CHAMPUS users. The EACH command deduced that the remaining 38,000 beneficiaries probably accessed the MTF for health care on a regular basis or used other forms of third party

insurance to cover their health care costs.

One of the requirements EACH had to meet under the CAM was to establish some method of enrollment for their beneficiary population. Although mandatory enrollment has been effective in controlling health care costs within closed health care systems (Burke, 1991), the command at EACH had no intention of enrolling all eligible beneficiaries since about 82,000 total beneficiaries resided in the combined catchment area of EACH and the AFAH.

Table 2.

CHAMPUS-Eligible Beneficiary Population
Air Force Academy Hospital & Evans U.S. Army Hospital
FY 1988 - FY 1991

Year	AFAH	EACH
1988	30,709	51,628
1989	31,459	56,065
1990	32,055	53,802
1991	32,536	55,175

Source: The Defense Medical Information System (DMIS).

Officials at EACH determined that since a large portion of their CHAMPUS eligible population used other third-party payers or accessed the MTF anyway, there was little need to monitor them through enrollment. The EACH strategy was to use a targeted enrollment process, that is, to target only high dollar users of CHAMPUS within the catchment area. The 12,000 high CHAMPUS dollar users

identified during the external assessment were established as the targeted enrollment population.

Beneficiary enrollment was the responsibility of the CAM Enrollment Office. It was estimated that the Enrollment office could generate 750 new enrollees per quarter. Enrollment was extremely successful and by the end of the second quarter FY 1990, Carson had enrolled 2,191 beneficiaries. By the end of the fiscal year, over one third (4,125) of the targeted population was enrolled. By the end of the second full year, the Enrollment Office had accounted for 7,250 beneficiaries or 60 percent of the target population. Figure 2 shows actual and program enrollment targets.

Table 3.

CAM Enrollment - Evans U.S. Army Community Hospital
Actual vs Targeted
2d Quarter FY 1990 - 4th Quarter FY 1991

Quarter	FY	Program Target	Actual	Percent of Total Target Pop.*
2	1990	2,000	2,191	18.3
3	1990	2,750	3,037	25.3
4	1990	3,500	4,125	34.4
1	1991	4,250	4,964	41.4
2	1991	5,000	5,605	46.7
3	1991	5,750	5,965	49.7
4	1991	6,500	7,250	60.4

* Based on 12,000 targeted enrollees.

Source: Coordinated Care Division, Evans U.S. Army Community Hospital.

With the targeted population identified, Fort Carson

had to market the new program for acceptance. This was the responsibility of the Marketing Office under the Program Branch (Figure 1). Much of the marketing effort used by EACH centered around the CAM benefit program and education of the public about those benefits. One of the marketing incentives authorized for CAM enrollees was the CHAMPUS deductible waiver. Standard CHAMPUS users paid a deductible of \$50 dollars per year for single users and \$100 per year for families. This was recently increased to \$150 and \$300, respectively. If the user enrolled in the CAM, he would not be required to pay the deductible commensurate with his or her status (dependent of active duty, retired, etc).

The standard CHAMPUS user was also responsible for cost sharing expenses for outpatient visits with the government after the deductible was paid. For active duty dependents, the cost share was 20 percent. Retirees and their dependents paid a cost share of 25 percent. An additional incentive created for the CAM enrollees was the use of reduced cost shares. The reduced cost share was usually 5 percent less than the customary beneficiary cost share (Badgett, 1990, July).

Another incentive for the CAM enrollee was the use of the established preferred provider network or PPN. Evans

was able to selectively establish agreements with providers throughout the community to support the CAM demonstration project. Since several networks were operating in the area, Carson piggybacked off the established networks, saving both time and money. Because of the competition within the Colorado Springs area, Carson was able to negotiate prices below the CHAMPUS allowable charges. When a provider accepts CHAMPUS under normal circumstances, that provider agrees to accept the CHAMPUS allowable charge as reimbursement for services. Since competition for the lucrative CHAMPUS population is great in the Colorado Springs area, Carson was able to establish rates from between 15 and 20 percent off the CHAMPUS allowable charges for reimbursement. Providers were very willing to trade discounted charges for volume. As a benefit, this ultimately was translated to a savings to the beneficiary since lower charges mean lower cost shares. Those beneficiaries outside CAM would continue to have higher out-of-pocket costs.

Building the PPN was not enough if access was to be improved across the facility. Officials recognized that there must be a conduit which would create a seamless interface between the existing direct care system and the extended provider network operate together. The conduit

established was the health care finder (HCF), formerly health benefits advisor (HBA). The health care finder concept had been successfully developed in the private sector improve access to care for beneficiaries (Hosek, et al., 1987). Evans also extensively expanded its existing telephone system capability to accommodate the expected increase of incoming calls (Badgett, 1990, July).

When a beneficiary used the appointment system to access the MTF, three alternatives were made available to the CAM enrollee. If available, an appointment was set up for the patient. If an appointment was not available, the CAM enrollee was asked if he or she was a CAM-enrollee. If the patient was an enrollee, the appointment clerk refers the patient to a HCF. The HCF accessed the hospital preferred provider network (PPN) for the patient and set up the appointment. If for some reason the patient was unhappy with being referred to the PPN, the patient had the final option of disenrolling from CAM. After disenrolling, the patient was free to use standard CHAMPUS.

Following the market assessment, EACH officials selected several areas they wished to manage. Obstetrics, mental health and orthopedic surgery were key areas targeted for recapture of CHAMPUS dollars. The general feeling by the command was that by bringing in civilian

providers under the Partnership Program, EACH could recapture a great deal of workload being lost to local area providers.

Since the estimated workload recapture was based upon the target population, EACH was ready to staff areas for recapture. Not only were providers required but it was also necessary to provide support staff. EACH recognized that increased numbers of providers would not only increase workload, but also drive up the need for ancillary services. Additional administrative clerks, medical records technicians, laboratory, radiology and pharmacy personnel must be hired to support the project.

Staff estimates to support the business plan were accomplished through staffing surveys completed within the hospital departments (Badgett, 1990, July). Although the actual CAM demonstration evaluation period officially began in October 1989, funding for the actual project was made available in March 1989. During Phase I of the project, the capability expansion phase, CAM personnel were added to support the demonstration project as early as April 1989. Specific targeted areas for CHAMPUS workload recovery received priority for staffing. By August 1989, the facility had added 77 CAM employees to the hospital. By FY 1991, over 230 employees were added to the hospital rolls

to support the project. This was an extremely significant action, as a hiring action like this would have been virtually impossible without CAM authority.

Following successful marketing and staffing efforts, anticipated increases in workload throughout the facility were demonstrated almost immediately. Targeted areas for recapture were most remarkable. To support their initiatives, EACH past practice patterns were altered concurrently with the staffing actions occurring within the facility.

One major change occurred with EACH's practice of authorizing care at civilian facilities. EACH became very restrictive in their use of non-availability statements (NAS). A NAS authorizes local care a beneficiary living within the MTF catchment area when the MTF can not provide the required care. This allows the beneficiary to obtain that care at a private facility under CHAMPUS.

This was a powerful control mechanism for EACH. NASS had been previously granted for local deliveries. To control obstetrical CHAMPUS costs, EACH authorized very few NASSs for delivery in their catchment area. Notable exceptions included complicated obstetrical cases and NASSs issued to patients living in the Pueblo, Colorado area. The city of Pueblo is located on the southern rim of Fort

Carson's catchment area. The command felt that poor weather and road conditions could prevent Pueblo patients from safely accessing EACH in the winter months. The result was a decrease of obstetrical NASSs from 1332 for FY 1988 to 102 for FY 1991.

Underuse of their existing obstetrical capability allowed for over \$7.65 million to be lost to downtown providers for obstetrical services in fiscal year 1988. This represented over 30 percent of the Carson CHAMPUS claims budget. For comparison purposes, obstetrical care (deliveries) cost the DoD between 6.7 - 7.0 percent of its total CHAMPUS budget from 1989 to 1990 (CHAMPUS Chartbook of Statistics, 1991, October).

Prior to the implementation of CAM, Carson was averaging just under 58 live births per month. The command speculated that by adding support staff and physician partners, Evans could reach 135 live births per month (GAO Report, 1990). To reach this goal, physicians in the obstetrical and family practice services began a closely coordinated system of managing their deliveries. Enrollment programs in each department (obstetrics and family practice) allowed for accurate forecasting of workload seven to eight months ahead based upon anticipated delivery dates. Both services recognized that maximum

efficiency was required if the targeted goal was to be reached.

Table 4.

OB NAS/Live Births
FY 1988 - FY 1991
Evans U.S. Army Community Hospital

	Live Births	delta births	%delta	OB NAS	delta	%delta
1988	695	- - -	- -	1,332	- -	- -
1989	1048	353	50.8	862	-470	-35.3
1990	1339	291	27.8	241	-621	-72.0
1991	1457	118	8.8	102	-139	-57.7

Source: Coordinated Care Division, Evans U.S. Army Community Hospital.

The recapture was gradual but by 1991, Evans was averaging over 121 live births per month, over twice the 1987 output. CHAMPUS inpatient obstetrical costs were reduced to \$1.03 million in 1991, representing approximately 5 percent of the EACH total CHAMPUS budget (claims only). Most of the \$1.03 million represented neonatal intensive care or other complicated obstetrical cases which were beyond the scope of care of the facility.

This represents a recapture of over \$6.63 million dollars in three years or an average of \$2.21 million per year since FY 1988. This does not account for program and inflationary growth which would make the savings much greater using 1988 as a base year. This figure realistically represents the maximum savings Fort Carson

could realize in the obstetrical arena as nearly all obstetrical workload based on capability was recaptured.

The Air Force Academy also sought to recapture some of their CHAMPUS obstetrical patients. Delivering approximately 50 babies per month in 1989, this number was increased to 55 per month by FY 1991. Obstetrical CHAMPUS costs decreased by over half from 1989 to 1991 from \$570,870 to \$215,766. The effect of the combined CHAMPUS obstetrical recapture by EACH and the AFAH on the local market was remarkable. Loss of obstetrical revenue on local hospitals was so financially significant that one major local hospital virtually closed its delivery rooms.

Table 5.

Live Births
FY 1988 - FY 1991
Air Force Academy Hospital

Year	Live Births	Diff.	% Diff.
1988	621	- - -	- - -
1989	594	-27	- 4.3
1990	690	+96	+16.2
1991	654	-36	- 5.2
Totals		+33	+5.3

Source: Resource Management Division, Air Force Academy Hospital.

Similar results occurred in the area of mental health. As with the majority of DoD facilities in the United States, EACH spent a great deal of CHAMPUS dollars on psychiatric care. In 1988, 30 percent (\$6.5 million) of

the Evans total CHAMPUS budget was spent on Psychiatry. The command at Evans felt this presented a lucrative opportunity to recapture psychiatric care within the facility.

Using CHAMPUS dollars, Evans proposed the opening of a 12 bed in-house adult psychiatric ward with day treatment capability. Officials at EACH estimated that only 4 patients per day would be required to reach a break even point for their investment of resources. The inpatient psychiatric ward opened in January 1991 and throughout the next nine months, daily occupancy was maintained at approximately 5 - 6 adult inpatients per day. Partners were brought in to support the expected case load and a nurse case manager was also hired to oversee patient treatment external to the facility. Within 9 months, Fort Carson dropped its daily external inpatient case load dramatically. Using aggressive case management, Carson was able to transfer psychiatric admissions from local facilities to EACH. In this way, EACH was able to keep the patient under their control. By October 1991, as few as 3 to 4 patients per day were on the roles of local facilities compared to approximately 12 adult inpatients per day in the previous year. Of those patients, most were adolescents or alcohol and drug abuse cases which were

beyond the scope of treatment at Evans. From January through December 1990, local civilian facilities averaged approximately 600 CHAMPUS inpatient psychiatric days per month. During the following year, influence from EACH decreased the average to 391 inpatient days per month.

One interesting phenomenon was noticed over the first 9 months the inpatient ward was in operation. EACH's inpatient psychiatric load did not increase concurrently with the decrease in downtown admissions. Officials at EACH felt that the increased case management activities were dramatically modifying the treatment patterns of the local community providers. Many of the patients were still being seen by local providers but were not being admitted to inpatient facilities. Local providers recognized that Carson did not have the capability to manage those patients treated on an outpatient psychiatric basis under CHAMPUS. Rather than lose control of those patients, the local providers choose not use the inpatient treatment option unless necessary. In this way, EACH directly influenced the local provider into using a lower cost treatment modality for the patient which indirectly lowered inpatient psychiatric CHAMPUS costs to the facility.

Total CHAMPUS psychiatric costs for EACH accounted for over \$6 million in FY 1988 (\$6,537,581). By the end of FY

1991, this declined to \$5,730,796, representing a 14 percent decrease. This does not include any inflationary or program growth costs. Applying respective total program/growth factors (FY 1989 - FY 1991) of 11.59, 8.22, and 23.34 percent (obtained from OCHAMPUS) for each year since base year FY 1988, Fort Carson's cost avoidance was much greater. Based on these growth factors, Carson's estimated mental health cost for FY 1991 would have been \$9.7 million compared to the actual \$5.7 million spent. In comparison, the AFAH psychiatric costs were \$3.5 million in FY 1988. By FY 1991, this had only increased to approximately \$4.0 million or a 12 percent increase in four years. Applying the same CHAMPUS inflationary/growth factors used above, expected CHAMPUS psychiatric costs would have been approximately \$5.9 million. This represents almost \$2.0 million in cost avoidance at the control facility.

Another highlight of the CAM operation was the cost avoidance realized by the Targeted Health Care Management Program (THCMP). During the environmental assessment, EACH recognized a small population of patients which used a disproportionately large amount of CHAMPUS or hospital dollars per service required. Under the THCMP, over 200 of these high dollar cases were followed by facility case

managers. These patients included those on home oxygen, total parental nutrition (TPN), enteral feedings, pain control, antibiotic therapy, hydration and chemotherapy.

The EACH staff determined that many of these patients did not require hospitalization for chronic conditions. Rather than continue treating these patients on an inpatient basis, EACH established contracts with home health agencies to care for the patients. EACH did not totally relinquish care to the home health agencies however as they continued to provide costly supplies to the home health care agencies for designated patients. This reduced the overhead for particular services. Patients requiring TPN were a prime example. The EACH pharmacy continued to prepare TPN and any additional supplements for designated home care patients. Providing care for 13 TPN patients for 1374 patient days would have cost Carson almost \$780,000. The actual cost to EACH was only \$107,000.

Also under the THCMP, EACH established their own home oxygen service. In FY 1991, EACH tracked 160 patients on home oxygen therapy. By providing their own home oxygen service, Carson was able to save approximately \$100,000. With cost avoidance as a driving factor, all programs under Carson's THMCP combined for a total cost avoidance of \$2,593,807 in FY 1991.

E. Access

One of the major factors of consideration which Congress and the Rand Corporation will use to evaluate the success of the CAM project at Fort Carson is access. Access can be evaluated through examination of various facility workload indicators. One such indicator is in-house admissions. Throughout the period of study, AFAH admissions decreased by 16 percent since FY 1988. Increasing cost per admission coupled with decreasing admissions could indicate some inefficiencies may be present working with medical inflation. This could also increase with the acuity level of patients admitted.

Table 6.

Total Admissions and Cost per Admission
FY 1988 - FY 1991
(Hospital Admissions only)
Air Force Academy Hospital

Year	total	diff	% diff	Cost/Adm	% diff.
1988	4,850			\$1,836.84	
1989	4,394	-456	- 9.4	\$2,173.77	+18.3
1990	4,302	- 92	- 2.1	\$2,188.62	+ 0.7
1991	4,062	-240	- 5.6	\$2,392.02	+ 9.3
Totals		-788	-16.2		+30.2

Source: Resource Management Division, Air Force Academy Hospital.

EACH was one of the few military facilities to show an increase of in-house admissions throughout the period of study (Slackman, 1991, September). In-house admissions

grew 33.7 percent since FY88. Like the AFAH, EACH also reflected a corresponding growth in cost per admission but the rate was half of that of the control facility. Increased admissions coupled with an staff increase of over 230 personnel could indicate greater efficiency as overhead is spread over a greater number of admissions.

Table 7.

Total Admissions and Cost per Admission
FY 1988 - FY 1991
(Hospital Admissions only)
Evans U.S. Army Community Hospital

Year	total	diff	% diff	Cost/Adm.	% diff
1988	8,488			\$1782.12	
1989	9,945	+1,457	+17.2	\$1700.33	- 4.6
1990	11,192	+1,247	+12.5	\$1888.74	+11.1
1991	11,345	+ 153	+ 1.4	\$2050.65	+ 8.5
Totals		+2,857	+33.7		+15.1

Source: Resource Management Division, Evans U.S. Army Community Hospital.

Throughout the four years, reducing CHAMPUS hospital admissions was a goal at both facilities and each was successful in meeting that goal. Conscious decisions by the command at both facilities to recapture the CHAMPUS obstetrical workload coupled with changing treatment practices like increased emphasis on ambulatory surgery can account for much of their success.

Table 8.

Total CHAMPUS Admissions and Cost per Admission
FY 1988 - FY 1991
(claims only)
Air Force Academy Hospital

Year	Hosp Admis.	Hosp Days	ALOS	GCPA	GCPD
1988	686	9,140	13.32	\$8,501.76	\$638.10
1989	768	10,228	13.32	\$8,292.77	\$622.69
1990	619	9,838	15.89	\$9,369.24	\$589.51
1991	547	8,253	15.09	\$9,986.18	\$661.82

Source: Resource Management Division, Air Force Academy Hospital.

Although in-house admissions at AFAH decreased since FY 1988, CHAMPUS admissions during the same period were reduced by 20.3 percent. Since the AFAH was recapturing some of its CHAMPUS obstetrical workload, a corresponding increase in the average length of stay (ALOS) from 13.32 to 15.09 was expected. Medical inflation would also contribute to the increase as would changing practice patterns from inpatient to outpatient settings through increased ambulatory surgery. Government cost per admission (GCPA) and government cost per day (GCPD) probably increased for similar reasons.

Table 9.

Total CHAMPUS Admissions and Cost/Admission
FY 1988 - FY 1991
Evans U.S. Army Community Hospital

Year	Hosp. Admis.	Hosp. Days	ALOS	GCPA	GCPD
1988	3,898	26,778	6.87	\$5,133.41	\$747.26
1989	2,962	21,543	7.27	\$5,213.96	\$716.88
1990	1,776	18,661	10.51	\$7,618.97	\$725.11
1991	1,119	14,447	12.92	\$11,141.50	\$862.97

Source: Resource Management Division, Evans U.S. Army Community Hospital.

A greater magnitude of decreased CHAMPUS admissions was seen at Fort Carson since FY 1988. CHAMPUS admissions dropped over 71 percent over the four year period from 3898 in FY 1988 to 1119 in FY 1991. ALOS of CHAMPUS patients nearly doubled from FY 1988 to FY 1991. A concurrent increase of GCPA was also seen as practice pattern changes probably accounted for the majority of this increase. Recapture of virtually all CHAMPUS deliveries and other less acute categories of patients contribute greatly to the increase. With only critically ill patients like neonates and those suffering from myocardial infarction admitted to local hospitals, an increase in GCPA was consistent with the dramatic increase of ALOS.

Admissions across the United States have dropped since the early 1980s in the private sector (Eubanks, 1991, January 20). Military facilities have followed a similar

trend. Total admissions at the AFAH dropped from 5,536 to 4,609, representing a decline of 16.7 percent over the four year period. This decline is consistent with the decreases seen at many DoD facilities across the nation.

Table 10.

Total CHAMPUS & Hospital Admissions
FY 1988 - FY 1991
Air Force Academy Hospital

Year	Admis	diff.	% diff
1988	5536		
1989	5162	-374	-6.8
1990	4921	-241	-4.7
1991	4609	-312	-6.3
Total Net diff.		-927	-16.7

Source: Resource Management Division, Air Force Academy Hospital & CHAMPUS Health Care Summary Reports (FY 1988 - FY 1991).

One of the fears voiced at the congressional level concerning the CAM project was the potential for recapture of the "ghost population" (Baldwin, 1987, June, Nelson, 1991, April 29). The ghost population refers to those CHAMPUS-eligible beneficiaries who primarily use some other source of health insurance rather than the MTF or CHAMPUS. Many in Congress felt that CAM benefits may be too good thereby enticing eligible beneficiaries away from using other third-party health insurance coverage. Uncontrolled and unforecasted workload caused by the ghost population could drive up costs.

A superficial examination might indicate that Fort

Carson was recapturing some of the ghost population when one looks only at in-house admissions. This is not the case when total admissions for the catchment area are explored.

Table 11.

Total CHAMPUS & Hospital Admissions
FY 1988 - FY 1991
Evans U.S. Army Community Hospital

Year	Admis	diff	% diff
1988	12386	+904	+7.9
1989	12907	+521	+4.2
1990	12968	+ 61	+0.5
1991	12464	-504	-3.9
Total Net Diff.		+78	+0.6

Source: Resource Management Division, Evans U.S. Army Community Hospital & CHAMPUS Health Care Summary Reports (FY 1988 - FY 1991).

Total admissions for the Carson catchment area were 12,386 in 1988. Total admissions increased to 12,464 by 1991 representing only a 0.6 percent increase over four years. The greatest increase occurred between 1988 and 1989 when total admissions increased by 521 admissions. This trend peaked in 1990 with only 61 increased admissions and declined by 504 admissions the following year. This represents a 3.4 percent cumulative decrease since FY 1989.

This trend was consistent with current health care doctrine as most managed care programs realize their greatest recapture in their first two years (Boland, 1991). If EACH was capturing some percentage of the potential

ghost population, the numbers reflected by total hospital admissions does not support this premise. A fact which is supported however was that there must have been some degree success of the implemented coordinated care principles at work in controlling admissions external and internal to EACH.

F. Costs

Along with access, cost containment was another prime consideration in the CAM evaluation process. Many factors influence the costs within the system such as medical inflation, program expansion, increases in beneficiary population, etc. Since FY 1988, inpatient costs at the AFAH increased only 13.2 percent while inpatient admissions also decreased 16.2 percent during the same period.

Table 12.

Total Hospital Inpatient Costs
FY 1988 - FY 1991
Air Force Academy Hospital

Year	Total	change	% change
1988	\$ 9,964,839		
1989	\$10,838,417	+ 873,578	+ 8.8
1990	\$10,803,051	- 35,366	- 0.3
1991	\$11,283,203	+ 480,152	+ 4.4
Totals		+1,318,364	+ 13.2

Source: Resource Management Division, Air Force Academy Hospital.

EACH inpatient costs increased by over 53 percent

since FY 1988. Concentrating on recapturing obstetrical and mental health workload, this increase was concurrent with a corresponding 34 percent increase in admissions as noted earlier (8,488 FY 1989 to 11,345 FY 1991). The most significant increase occurred in FY 1990, the year the CAM project was implemented. This would be expected at increased staff would increase overhead to the facility.

Table 13.

Total Hospital Inpatient Costs
FY 1988 - FY 1991
Evans U.S. Army Community Hospital

Year	Total	change	% change
1988	\$15,126,650		
1989	\$16,909,806	+\$1,783,156	+11.8
1990	\$21,138,844	+\$4,229,038	+25.0
1991	\$23,264,706	+\$2,125,862	+10.1
Totals		\$8,138,056	+53.8

Source: Resource Management Division, Evans U.S. Army Community Hospital.

Outpatient visits generally decreased at the AFAH. Representing a peak year in FY 1988 (254,946 visits), outpatient visits decreased by 7.4 percent. In a reciprocal relationship, costs per outpatient visit (OPV) increased by 45 percent. This could indicate that there were some inefficiency built into the system as higher costs were spread to lower numbers of outpatient visits. Another possible reason for increased overhead at the AFAH was the fact that the facility underwent a facility upgrade

of \$5 million since 1988. Much of the renovation involved patient treatment areas which reduced numbers of visits. Reduced capability would increase cost per visit.

Table 14.

Total Outpatient Visits and Cost per Outpatient Visit
FY 1988 - FY 1991
Air Force Academy Hospital

Year	Total	change	% change	Cost/OPV	% change
1988	256,946	- - -	- -	\$59.32	- -
1989	245,284	-11,662	-4.5	\$68.09	+14.8
1990	240,170	- 5,114	-2.1	\$71.93	+ 5.6
1991	238,006	- 2,164	-0.9	\$85.95	+19.5
Total Net diff.		-18,440	-7.4	+\$26.63	+44.9

Source: Resource Management Division, Air Force Academy Hospital.

Outpatient visits at EACH climbed approximately 10 percent per year since FY 1991. Cost per visit also increased, once again probably due to the increased overhead of the additional staff required to support the project. The highest increases in cost per OPV occurred in the two years following CAM implementation.

Table 15.

Total Outpatient Visits and Cost per Outpatient Visit
FY 1988 - FY 1991
Evans U.S. Army Community Hospital

Year	Total	change	% change	Cost/OPV	% change
1988	417,846	- - -	- - -	\$49.62	- - -
1989	460,176	+42,330	+10.1	\$52.18	+ 5.2
1990	491,101	+30,925	+ 6.7	\$60.05	+15.1
1991	545,980	+54,879	+11.2	\$66.03	+10.0
Totals		+128,134	+30.7	+\$16.41	+33.1

Source: Resource Management Division, Evans U.S. Army Community Hospital.

Although an average increase of 42,000 visits at EACH seems like an inordinate increase per year, this only represents about a 10 percent workload differential per year. As with any operation, this increase could be attributed to increased efficiencies at work within the system. It should be noted that there might have been some confounding effect of the overlapping catchment area at work with both the in-house admissions and outpatient visits. Patients located within the areas of overlap were allowed to enroll in the CAM demonstration project. It is possible that beneficiaries in the overlap took advantage of the increased benefit package and MTF capability at EACH and selected to receive treatment at EACH.

To explore the premise of possible patient drift from the Air Force Academy Hospital catchment area, the Defense Medical Information System (DMIS) was queried. According to DMIS, Air Force beneficiaries (active duty, retirees and their dependents) residing in the EACH catchment area totalled 2,828 in FY 1988. By FY 1991, this population increased to 3,236 representing an increase of 14.4 percent.

Table 16.

Air Force Beneficiaries Residing
within EACH Catchment Area
FY 1988 - FY 1991

Year	Active Duty	Active Duty Dependent	Retired	Retired Dependent	Survivor	Total
1988	261	463	819	1,156	129	2,828
1989	245	618	833	1,100	126	2,951
1990	232	633	850	1,124	133	3,007
1991	243	788	892	1,134	131	3,236
Percent increase since FY 1988						14.4%

Source: Defense Medical Information System.

The following two tables Table 17 & 18) present a breakdown of outpatient visits and admissions seen at EACH from FY 1988 - FY 1991. Only Air Force beneficiaries are included.

Table 17.

Outpatient Visits (EACH)
FY 1988 - FY 1991
Air Force Beneficiaries only

Year	Active Duty	Act. Duty Dependents	Retired	Retired Dependents	Total
1988	941	2,009	2,924	2,895	8,769
1989	805	2,156	3,461	3,792	10,214
1990	1,702	4,519	6,458	6,364	19,043
1991	2,361	6,386	7,416	7,937	24,100
	151.0%	217.8%	153.6%	174.2%	174.9%

* Percent change since FY 1988

Source: Patient Administration Division, Evans U.S. Army Community Hospital.

Table 18.

Admissions (EACH)
FY 1988 - FY 1991
Air Force Beneficiaries only

Year	Active Duty	Act. Duty Dependent	Retired	Retired Dependent	Total
1988	82	88	150	108	428
1989	40	97	126	116	379
1990	54	142	238	239	673
1991	59	213	267	219	758
	-28.0%*	142.0%*	78.0%*	111.0%*	77.1%*

* Percent change since FY 1988

Source: Patient Administration Division, Evans U.S. Army Community Hospital.

Since the inception of CAM at Fort Carson, a dramatic increase is demonstrated in admissions involving Air Force retirees, their dependents and active duty dependents. Outpatient visits involving Air Force active duty dependents and retirees and their dependents is also demonstrated. It is unlikely that the net 408 Air Force beneficiaries (3,226 total) added to the EACH catchment since FY 1988 accounted for the increase in admissions and outpatient visits by Air Force beneficiaries. With increased efficiency and access translating to higher productivity, it is more likely that there was a significant patient drift from the Air Force Academy Hospital catchment area. Tables 10 and 14 also support this premise since net admissions and net outpatient visits at the AFAH decreased over the four years by 927 and 18,440

respectively.

Both the Air Force Academy Hospital and Evans U.S. Army Hospital were effective at reducing CHAMPUS inpatient costs over the period. AFAH reduced their CHAMPUS inpatient costs by approximately 6.3 percent since base year FY 1988. EACH was able to reduce their CHAMPUS inpatient costs by nearly 38 percent (37.7). This represents a recapture of nearly \$8 million in three years for EACH, compared to the approximate \$400,000 cost avoidance realized by the AFAH. Much of the combined recapture was attributed to the dedicated effort to bring CHAMPUS births back into both facilities.

Table 19.

CHAMPUS Inpatient and Outpatient Costs
FY 1988 - FY 1991
Evans U.S. Army Community Hospital &
Air Force Academy Hospital*

	EACH CHAMPUS	EACH CHAMPUS	AFAH CHAMPUS	AFAH CHAMPUS
Year	IP \$	OP \$	IP \$	OP \$
1988	\$20,010,034	\$2,714,739	\$5,832,210	\$1,977,366
1989	\$15,443,742	\$6,382,582	\$6,368,851	\$2,843,663
1990	\$13,531,283	\$6,980,093	\$7,799,562	\$3,785,415
1991	\$12,467,340	\$7,727,348	\$5,462,441	\$5,111,586
Delta	-37.7%	+88.8%	- 6.3%	+159.0%
*claims only				

Source: CHAMPUS Health Care Summary Reports (FY 1988 - FY 1991).

CHAMPUS outpatient costs have grown dramatically at both the control and CAM facility since FY 1988. The rate

of increase at the CAM facility is about half that of the control facility. It should be noted that most of the increase in the EACH CHAMPUS outpatient budget occurred prior to the implementation of CAM. From FY 1988 to FY 1989, CHAMPUS outpatient budget at EACH climbed almost 2.5 times in a single year. In FY 1990 and FY 1991, the rate of increase per year was only 9.3 and 10.7 percent, respectively. The control facility growth for the same two years was 33.1 and 35.0, respectively. Much of the increase in CHAMPUS outpatient expenditures at EACH can be attributed to the increased use of Partnership physicians. As added partners increased access, cost increased concomittally.

When total CHAMPUS costs (claims only) are examined for the two facilities, a general increase was noted for each of the years. The only exception was a 9 percent decrease for EACH in FY 1989.

Table 20.

Total CHAMPUS Costs
FY 1988 - FY 1991
(claims only)
Air Force Academy Hospital

Year	(\$)	diff.	% delta
1988	7,872,967		
1989	9,328,186	+1,455,219	+18.5
*1990	9,727,686	+399,500	+4.3
*1991	10,588,982	+861,296	+8.9
Total delta since 1988		+2,716,015	+34.5

Source: OCHAMPUS Health Care Summary Reports.

Since base year FY 1988, the AFAH total CHAMPUS budget has increased incrementally by about 11 percent per year. Using program growth and inflation rates established by OCHAMPUS and applying each to the appropriate year following the base year, the AFAH exhibited a cost avoidance of about \$374,879 since FY 1988. All of this cost avoidance was realized from FY 1990 to FY 1991.

Table 21.

Total CHAMPUS Costs
FY 1988 - FY 1991
(claims only)
Evans U.S. Army Community Hospital

Year	(\$)	diff.	% delta
1988	24,507,090		
1989	22,273,963	-2,233,127	-9.1
*1990	26,311,658	+4,037,695	+18.1
*1991	27,211,131	+ 899,473	+ 3.4
Total delta since 1988		+2,704,041	+11.0
*CAM Operating Costs included for FY 90, FY 91			
*FY 1990 (\$5,534,400) *FY 1991 (\$6,998,900)			

Source: OCHAMPUS Health Care Summary Reports & Evans U.S. Army Community Hospital, Resource Management Division.

The total CHAMPUS budget (claims only) at EACH grew at an annual rate of just over 3 percent per year since FY 1988. For fiscal years FY 1990 and FY 1991, the amount of CHAMPUS money which was used to fund the CAM was added into the total. This is annotated on the Table 21. The commander actually used these funds for operational

purposes, but the fund site is from his programmed CHAMPUS budget. Using the OCHAMPUS program growth and inflation rates for each year, and applying them to the base year FY 1988, total cost avoidance of the CAM facility including CAM costs is estimated (estimated minus actual) at \$17,649,132.

Table 22.

Operation and Maintenance Expenditures
FY 1988 - FY 1991
Air Force Academy Hospital

Year	O&M	diff.	% diff
1988	\$11,426,100		
1989	\$13,786,400	+2,360,300	+17.1
1990	\$14,503,500	+ 717,100	+ 4.9
1991	\$20,903,000	+6,399,500	+30.6
Totals		+9,476,900	+82.9

Source: Air Force Academy Hospital, Resource Management Office.

(Note: FY 1991 is not adjusted for Desert Storm/Desert Shield)

Table 23.

Operation and Maintenance, Army
FY 1988 - FY 1991
Evans U.S. Army Community Hospital

Year	OMA	change	% change
1988	\$22,786,000		
1989	\$29,449,000	+6,663,000	+29.2
1990	\$35,102,000	+5,653,000	+19.2
1991	\$43,719,000	+8,617,000	+24.5
Totals		+20,933,000	+91.9

Source: Resource Management Office, Evans U.S. Army Hospital.

Upon review of the Operation and Maintenance budget of EACH, an explanation should be included for proper

interpretation. Under the CAM concept, the hospital commander has the freedom to use CHAMPUS funds in a direct care capacity. This money is actually reflected as OM funding. Table 23 does not account for those CHAMPUS dollars directed to support the CAM. These expenditures are included in the CHAMPUS expenditures, addressed in a later table. By removing CAM expenditures, the adjusted table would be more properly presented as in Table 24.

Table 24.

Operation and Maintenance, Army
FY 1988 - FY 1991
Evans U.S. Army Community Hospital (adjusted)

Year	OMA	change	% change
1988	\$22,786,000		
1989	\$29,449,000	+6,663,000	+29.2
1990	\$29,567,600	+ 118,600	+ 0.4
1991	\$36,720,100	+7,152,500	+24.2
Totals		+13,934,100	+61.2

Source: Health Services Command, Office of the Comptroller
(Note: FY 1991 is not adjusted for Desert Storm/Desert Shield).

Upon review of the total costs of providing health care at Evans, the average increase of expenditures slowed in the years 1989 and 1990. A sharp rise in expenditures is seen in 1991. This is attributed to the Desert Storm/Shield operation which was going on in the Middle East. Although few Fort Carson troops were involved in the war, the hospital was responsible for sending a large

contingent of personnel (surgical staff) to staff the 10th MASH (Mobile Army Surgical Hospital). This loss of surgical and ancillary staff had a profound effect on the surgical capability of EACH which probably contributed greatly to both the CHAMPUS general and orthopedic surgery costs for FY 1991. Included in this total is \$2.4 million in actual overseas deployment costs. EACH was also responsible for the supplies necessary to prepare for the deployment of that unit. Because of the war, most DoD facilities reflected inflated numbers for FY 1991 since their normal peacetime mission was complicated by war preparation and/or actual deployment.

Table 25.

Total Cost of Providing Health Care
FY 1988 - FY 1991
(Direct and CHAMPUS Budgets)
Air Force Academy Hospital

Year	(\$)	diff	% diff
1988	19,299,067		
1989	23,114,586	+3,815,519	+19.8
1990	24,231,186	+1,116,600	+ 4.8
1991	31,491,982	+7,260,796	+30.0
Totals		+12,192,915	+63.2

Source: Resource Management Office, Air Force Academy Hospital.

Table 26.

Total Cost of Providing Health Care
FY 1988 - 1991
(Direct and CHAMPUS Budget)
Evans U.S. Army Community Hospital

Year	(\$)	diff.	% diff
1988	47,293,090		
1989	51,722,963	+4,429,873	+ 9.4
1990	55,879,258	+4,156,295	+ 8.0
1991	63,931,231	+8,051,973	+ 14.4
Totals		+16,638,141	+ 35.2

Source: Health Services Command, Office of the
Comptroller.

G. Efficiency

Incremental changes were necessary at EACH to provide efficiency to the new operation. Two specific structural changes were made to accommodate the process changes which were occurring. One of the changes implemented was a reorganization of the clinic structure of the hospital in December 1991. Prior to the inception of CAM, the clinics were not organized under a single supervisor. The clinic chief (physician) was responsible only for the physicians working in the clinic. Nurses and ancillary staff were controlled by the Department of Nursing. Even the appointment system of the clinic was centrally controlled under the Personal Services Division. This made it difficult for the clinic chief to exert control authority over his clinic.

Under the reorganization, the clinical control

structure completely changed. The clinic chief became responsible for every person in his clinic to include administrative, nursing and other ancillary staff. Concurrent with the reorganization, the hospital central appointment system was also dissolved. Each clinic gained control of their own appointment clerks which would work in close proximity with the clinic. These changes gave the clinic chief absolute control and responsibility of the operation within his clinic.

The EACH Department of Nursing also underwent changes to increase efficiency within the facility. One layer of middle management was completely removed from under the Chief, Department of Nursing. These personnel became clinical nurse consultants within the reorganized clinics. These nurses were to serve not only as senior trainers and advisors to the clinic, they also provided a linchpin between the clinic and its supporting ward on the inpatient side of the hospital.

IV. Conclusions

Based upon the presented information, the Catchment Area Management Project at Evans U.S. Army Community Hospital was successful in controlling costs when compared to the control facility. The CAM was also directly responsible for improving access both in the inpatient and

outpatient arena of the MTF when compared to the control.

There are several reasons which support the success realized at Fort Carson. Under the CAM authority, the hospital commander was given local control over his CHAMPUS budget. He was able to use these monies to purchase services for the benefit of his beneficiaries. From a business aspect, this created a win-win situation for the commander. Because he has a firm knowledge about the market, the commander should clearly understand his facility strengths and service limitations. Local autonomy allows him to be a prudent purchaser of health care and the flexibility to respond to the changing environment. The fluidity of available funds allows the commander to keep pace with the market conditions.

Another key aspect of local autonomy is "profit" or cost avoidance. In the private sector, profit runs the business. Without profit, there can be no expansion of services and the organization usually does not survive. Investors expect to receive a portion of the profit in return for their support. This profit can not be used by the organization. Under a system like CRI, any unspent funds under the contract is realized as profit to the contractor. Profit under CAM is realized as cost avoidance. The local commander can exercise his authority

and shift this cost avoidance to other beneficiary programs even if those programs represent a loss to the facility. Under this system, all "profit" remains within the hospital for which it was dedicated and the DoD beneficiary ultimately receives the benefit of new equipment and services.

Prior to programs like Catchment Area Management, the military hospital commander was limited to his Operation and Maintenance (OM) budget to fund his facility. The project at Fort Carson clearly demonstrates the ability of the commander to maximize MTF efficiency by exercising authority over his CHAMPUS budget. Augmentation of his OM budget with CHAMPUS monies allows the commander to purchase the right services in the right amounts for his beneficiaries.

The success of the Fort Carson CAM lends further support to previous studies that contend that increased MTF use by augmenting existing services can create significant cost saving opportunities (Baine, 1990 September, Slackman, 1991, September).

Managed care organizations, like the one at Fort Carson, are confronted by a significant learning curve before the program reaches maturity. Since the military system has lagged behind the private sector managed care,

EACH experienced many of the same problems which confronted early attempts at managed care by the private sector. Fort Carson did not immediately realize maximum recapture of workload within the facility but as the learning curve began to flatten, the CAM became more efficient. This was extremely evident in the EACH obstetrical service. Becoming smarter about managed care, better market decisions ultimately benefited the Carson CAM. As the CAM matured, the facility was also able to offer more services. This was mainly due to the incremental addition of about 80 providers by FY 1991.

The bottom line of the CAM project at Fort Carson was cost containment. Throughout the project, Carson was able to show a substantial cost avoidance of about \$17 million in CHAMPUS costs. Effectively identifying and capitalizing on targets of opportunity, recaptured CHAMPUS obstetrical and mental health workload contributed greatly to the total cost avoidance. As a result, total CHAMPUS costs increased only 11 percent since 1988, well below the national average of 9 percent yearly (Slackman, 1991, September).

In conclusion, it seems that many of the operational aspects of Catchment Area Management need to remain part of whatever coordinated care program the DoD eventually adopts. Local area autonomy and decentralized execution

provide the latitude necessary for military medical facilities to operate in a fluid healthcare market. Outside of cost containment, the future goal of military managed or coordinated care should meet the needs of its supported beneficiary population. Coordinated care systems like Catchment Area Management seem to provide the tools for commanders to readily accomplish that goal.

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APPENDIX A

Glossary

Civilian Health and Medical Program of the Uniformed Services - the comprehensive health insurance program offered by the Department of Defense to military dependents, military retirees and their dependents and designated members of the Department of Defense.

coordinated or managed care- a health delivery system which attempts to provide the highest quality, lowest cost care to patients by influencing the behavior of providers through incentives, penalties and practice monitoring.

Catchment Area Management - a Department of Defense initiative which gives the local area hospital commander control of direct care and CHAMPUS funds. The commander uses the funds to provide quality health care in the least costly method.

catchment area - a forty mile radius which encircles a military treatment facility for which the military hospital commander is responsible.

fiscal year - a 365 day period used by the Department of Defense for accounting purposes which begins on October 1 and ends on the following September 30.

Military/Civilian Health Services Partnership Program - legislation which allows private health care providers to provide care to eligible CHAMPUS beneficiaries inside military treatment facilities. Providers agree to discounted reimbursements and must bill CHAMPUS directly for care rendered.

network - a group of providers who agree to provide care to a designated population of patients for a third party contractor

non-availability statement - an administrative form which authorizes medical care outside the local MTF to a CHAMPUS-eligible beneficiary residing within the catchment area. Non-availability statements are not required for emergency care or for care required outside the catchment area. Generally, they are required only for inpatient treatment.

APPENDIX A (continued)

Preferred Provider Organization or Preferred Provider Network- a network of health care providers who contract with a agency to provide health care for a preset payment or discount to a predetermined group of beneficiaries.

service area (also medical service area) - describes the combined catchment area of two or more military treatment facilities which share overlapping catchment areas.

third party payer - an agency which provides reimbursement for an individual to a provider for healthcare services rendered to that individual

APPENDIX B
Acronyms

AFAH - Air Force Academy Hospital

ALOS - Average Length of Stay

CAM - Catchment Area Management

CHAMPUS - Civilian Health and Medical Program of the
Uniformed Services

DMIS - Defense Medical Information System

EACH - Evans U.S. Army Community Hospital

FI - Fiscal Intermediary

FY - Fiscal Year

GCPA - Government Cost Per Admission

GCPD - Government Cost Per Disposition

HMO - Health Maintenance Organization

MASH - Mobile Army Surgical Hospital

MEPRS - Medical Expense and Performance Reporting System

MHSS - Military Health Services System

MTF - Military Treatment Facility

NAS - Non Availability Statement

OCHAMPUS - Office of the Civilian Health and Medical
Program of the Uniformed Services

OMA - Operation and Maintenance, Army

PPN - Preferred Provider Network

PPO - Preferred Provider Organization

TPN - Total Parental Nutrition

UR - Utilization Review